

## INTRODUCTION TO MAC CRM TRAINING

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I think perhaps I first ought to talk a little bit about MAC for some of our symposium members who may not have recognized that we are not merely the transport part of the United States Air Force. Too frequently that is what we are known for, although admittedly, that is probably 75 percent of our business.

Ed mentioned the fleet size, and we do have some 70-plus C-5's and 244 141's and about 330 active duty C-130's and a like number of reserve 130's, so the total force of MAC is probably somewhere around 1400 aircraft. We also operate 80 Lear Jets and forty Beech turbo-props. That is a different kind of environment. Some of you here are in the executive business and appreciate that. But we also have some airplanes called MC-130's that do some things in rather strange operating environments, like very low level, very late at night, without lights. We have a fleet of AC-130 gunships. And when all that murder and mayhem is dispensed with, we've got our fleet of C-9 aeromedical evacuation aircraft. We also have almost 200 helicopters. Another different operating environment from those of you in the airline industry.

I think our most demanding missions are those flown by crews who take a C-130 into a 3500-foot iced-over dirt strip in Alaska which has a one-way approach to it, where you're committed to landing at the mile-and-a-half-out point. There is no go-around because the hills are too high. Or perhaps the 141 that flies at 300 feet, 250 knots, blacked out, with the crew operating on night-vision goggles. Those are just a little more constraining than San Francisco to Washington, or Tokyo to Seattle. And obviously, in that kind of an environment, crew coordination and cockpit management become extremely significant to us.

Our crew resources range from some 15,000-hour pilots to brand-new ones out of undergraduate training who come to us with 265 hours flying time and have never been in an airplane with more than two seats, one of which is an instructor's.

Cockpit resource management is nothing new to the Command. We have called it other names. My first exposure to it was as a co-pilot training in a C-118 or DC-6 in 1956. I was taught that I had certain duties to perform as a co-pilot: advise the pilot of radio settings and altimeters and clearances, monitoring aircraft systems performance and monitoring the behavior of all crew members to ensure consistency of performance. I was the checklist-runner at that time, and all of your co-pilots do those same kinds of things.

CRM under another name was reinforced in '59 when I went through the formal instructor upgrade training conducted by a doctor of education--one Gale Miller, who is still with us. This was a formal school that discussed interpersonal behavior, evaluation techniques, communication, and seminar leadership.

In the early sixties, I served a tour as an instructor in that school and I taught a course they called "pilot judgment." It was much like a program described for us yesterday. We reviewed all the previous accidents of the two to three years prior and assessed the performance of crew members in each of those accidents. What should the co-pilot have done differently? Did the engineer advise the aircraft commander properly? Did the aircraft commander utilize all the data available to him? We would say today: Did he use all his resources? What was his leadership, or lack thereof?

I left the command for a while, came back after five years and found myself involved in five-day annual simulator refresher programs, again similar to some described yesterday. Included were aircraft performance, systems training, air crew coordination--albeit without the video cameras--and line-oriented flight training that included one full period of four hours. This was particularly significant to us in those days of flying the Berlin corridor in the electronically-hostile environment with jamming and voice intrusion, false navigational aids, et cetera.

Currently, our initial training stresses those same basic things--performance, systems and crew coordination if you're the copilot or the flight engineer; leadership, if you're the aircraft commander. Our line refresher training today is programmed so that systems operations are reviewed in cockpit procedures trainers, and our simulators are used for LOFT missions over representative mission segments built by each individual wing for the route structure they most frequently fly.

Now, why then, if we have been smelling this rose by some other name, were we so concerned that in the period from 1980 to 1982, would we ask a panel of recognized authorities in the field of aviation education (operating under the purview of the Air Force Scientific Advisory Board) to review all of our training practices? Why then, if we are so good at this and have been doing it for 30 years, are we so interested in having NASA/Ames chair a symposium with us on the subject of cockpit resource management? Very frankly, we did it because we found in the late seventies we had "backslud," as Dizzy Dean might have said.

We found in the eighties that while we thought we had a forward-looking philosophy in the command, we had been very retarded in the use of the technology of education.

Now to draw upon the theories of training presented yesterday, we are certainly interested in ensuring that our instructors are properly selected. They must have enough flying experience and a level of qualification that they can teach flying skills and certainly must establish their credibility with the crew force that they're teaching. And we recognize they must also be capable of training the skills of problem solving and communication and motivation and in small-group behavior.

We think that our "pre-existing shell" is conducive to an aircraft commander establishing himself as an effective team leader. But we also recognize that the world of reality causes us to put otherwise perfect strangers together to form a crew. We are concerned that all members of that crew form a cohesive, cooperative unit early in their acquaintance, hopefully before they ever climb aboard the air machine.

We find each day as we form crews that we have a few old heads who are very skeptical and we have some of those newcomers who have never flown a "crewed" aircraft. And we also find a few "backsliding sinners." We find ourselves with some staffers who are a little reluctant to turn course developments over to line units, and I have to admit we have a few skeptical wing and squadron commanders.

We have only within this last five or six years come to full recognition of the value of computer-assisted course development, of the value in developing crew coordination and of role playing. And certainly we have not really taken advantage of video capability to record performance so that crew members can, in fact, go through self-assessment. Therefore, we have asked these people to help us.

We sought the assistance of commercial aircrew training organizations. In our first presentation today, we will discuss the application of the United Program to military operations. We have encouraged development of cockpit resource management for initial and continuation training, for reinforcement at each of our individual wings and squadrons. In our other presentations, we will talk about the approach taken by our helicopter and rescue 130th Training Wing and of the approach of one of our airlift squadrons, which happens to be a reserve squadron.

We sought through this symposium to learn from you, to help synthesize our thinking, to review your approaches and to participate in the workshop's exchange of ideas. We think our program is ongoing, but for us to stand here and say that we have a great cockpit resource management training program and it's working magnificently would be sticking our head in the proverbial sand. So we are participating in this program.

We are going to hear first from United Airlines and Seville--Captain Dale Cavanagh and Dr. Williams. And then we will turn to Lt. Colonel Biegalski and Major Halliday from up at Travis--my 349th Wing up there. We will talk about our squadron applications. I hope you will see how we have chosen to apply this training at different levels of our organization and how it has worked for us.